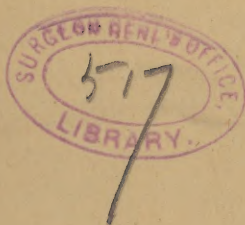


VAN HOOK (W.)

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**EXPERIMENTAL REUNION OF THE TRANS-
VERSELY DIVIDED VAS DEFERENS.¹**

BY WELLER VAN HOOK, A.B., M.D.,
PROFESSOR OF SURGICAL PATHOLOGY AND BACTERIOLOGY IN THE
COLLEGE OF PHYSICIANS AND SURGEONS, OF CHICAGO.

AFTER a number of unsuccessful efforts I have found a simple method by which the vas deferens can be reunited after complete transverse division. It may be recalled that I have already succeeded in reuniting the ureter after complete transverse injury, by lateral implantation of the proximal into the distal fragment through a slit in the wall of the latter portion of the duct.² This method has been successfully employed in the human subject by Dr. Howard A. Kelly, of Baltimore, in a case in which the ureter was severed unintentionally during an operation for the removal of a large myoma uteri. In the report of the case³ the operation is termed uretero-ureterostomy or uretero-ureteral anastomosis. The term lateral implantation seems to me preferable.

Experiment, January 15th, 1894. A very large Newfoundland dog was laid upon his back in a

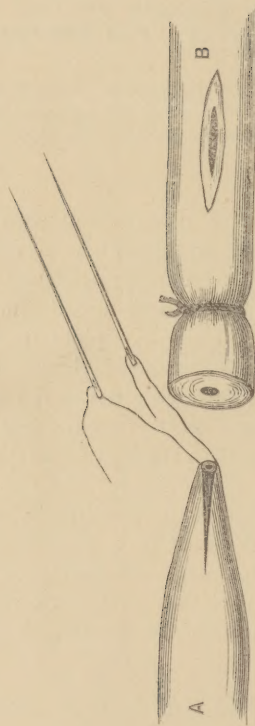
¹ Extract from the President's Address before the Alumni Association of the College of Physicians and Surgeons, Chicago.

² Journal Amer. Med. Assoc., Dec. 16 and 23, 1893.

³ Annals of Surgery, Jan., 1894.

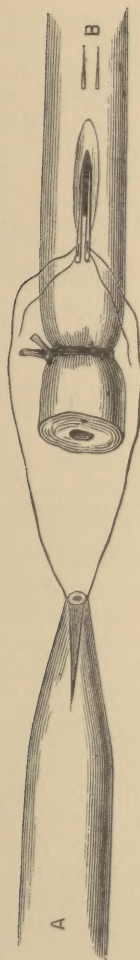


FIG. 1.



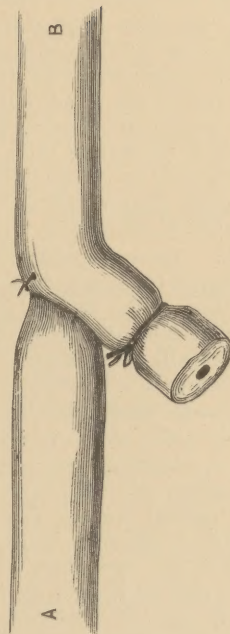
A. Testicular extremity of divided vas deferens. B. Proximal extremity. The distal portion, A, has been "sharpened," the opening has been enlarged by a longitudinal slit and the traction-suture has been introduced. The proximal fragment, B, has been ligated and a slit made in the side.

FIG. 2.



The needles of the traction-suture in the act of being passed through the wall of the proximal fragment from within outward.

FIG. 3.



The distal fragment has been drawn into the proximal segment by means of the traction-suture, which has been tied.

trough, and the skin over the scrotum and base of the penis shaved and carefully disinfected. Under ether-anesthesia an incision three-quarters of an inch long was made over the left spermatic cord just below the inguinal ring. The vas deferens was easily drawn through an opening made in the fascia and pulled out through the skin-wound. The duct was then divided transversely with scissors, and retraction of the cut ends prevented by forceps. A tight ligature was applied, one-fourth of an inch from the end of the upper fragment, and, with a very fine, sharp-pointed scissors, a longitudinal incision was made in the wall of this portion of the duct at a point one-fourth of an inch above the ligature. This incision penetrated to the lumen of the tube and extended upward a distance of one-third of an inch. Next the distal fragment of the duct was prepared for implantation into the slit in the upper portion. The lumen of the vas deferens is small, in comparison with the diameter of the entire duct, as its walls are composed of dense and thick muscular layers. Hence, in order to enable the lower end to be drawn into the slit in the upper portion of the tube, the muscular walls had to be trimmed off to a tapering point, exactly as one would sharpen a leadpencil. This having been accomplished by the careful use of fine scissors, an incision one-eighth of an inch long was made in the sharpened end of the tube simply to insure a patent opening. Two fine needles, armed with a single thread, were then passed from within outward through the wall of this portion of the vas deferens, thus securing it in the grasp of a loop of thread. The needles were then passed into the slit in the upper part of the duct, and their points being carried carefully upward within the tube for one-half an inch, the needles were pushed through the wall from within

outward, emerging, of course, side by side. It is now easy to see that the *sharpened* lower fragment could be drawn into the upper fragment by the traction-suture. This being accomplished, the ends of the suture were tied together, and, the vas deferens being carefully returned, the wound was closed.

The autopsy upon this dog (killed with chloroform six weeks later) showed (1) a normal testicle upon the side subjected to experiment; (2) no accumulation of testicular secretion below the site of operation; (3) perfect patency of the duct at the point of reunion, as shown by the passage of a small probe; (4) complete continuity of the mucosa throughout; (5) firm union of the muscular walls, with a minimum of scar-tissue.

This simple means of reuniting the vas deferens after transverse injury commends itself, especially in the human subject, as the vas deferens in man is large enough to be fairly easy of manipulation, and it is long enough to admit of considerable shortening without detriment.

As to opportunities for the application of the method, one easily thinks of the possible, although of course rare, wounds due to missiles and cutting instruments; of wounds accidentally inflicted during surgical operations, especially in herniotomies and the open operation for varicocele, and of operations in which it might be desirable to remove a portion of this duct, as in tumors of the cord and, probably more frequently, in cicatricial contractions involving the vas deferens or in accidental and at first unrecognized ligations made during the subcutaneous operation for varicocele.



